

EXHIBIT D

Expert Report of John Lynch, MD, MPH, FIDSA

Date: November 27, 2024

Signature: 

John B. Lynch, MD, MPH, FIDSA

BACKGROUND AND QUALIFICATIONS

1. I am a board-certified physician in infectious disease, an active infectious diseases clinician, a Professor of Medicine at the University of Washington (“UW”) School of Medicine in the Division of Allergy & Infectious Diseases, and an Associate Medical Director of Harborview Medical Center. In my role as an Associate Medical Director, I am responsible for Harborview Medical Center’s Infection Prevention & Control, Antimicrobial Stewardship, Employee Health, and Sepsis programs. I also served on the Board of Directors of the Infectious Diseases Society of America (“IDSA”) from 2019–2022 and was recognized as a Fellow of IDSA (“FIDSA”) in 2020.
2. I was the Lead for the Medical-Technical Team for UW Medicine’s COVID-19 Emergency Operations Center (“EOC”) from February 2020 until December 2023, when the Medical-Technical Team was no longer required. In that capacity, I helped guide UW Medicine’s response to the COVID-19 pandemic, including with respect to UW Medicine’s decision and policy to require COVID-19 vaccinations for its clinical employees.
3. I earned my Doctor of Medicine (“MD”) from the UW School of Medicine in 2002 and my Master’s in Public Health (“MPH”) in epidemiology and global health from the UW School of Public Health in 2011. After completing my internship and residency in internal medicine at the Massachusetts General Hospital in 2005, I did my clinical fellowship in infectious diseases at the UW School of Medicine (2005–2009) and was a post-doctoral fellow in viral immunology at the Overbaugh Lab at the Fred Hutchinson Cancer Research Center (now the Fred Hutchinson Cancer Center). I am an active teacher and have a long history of providing infectious diseases education for students, residents, fellows, physicians, nurses, and many other types of healthcare workers. My clinical activities are focused on the care of patients with the entire spectrum of infectious diseases who present for care at Harborview Medical Center.
4. A copy of my CV, which contains additional information regarding my qualifications and a list of publications I authored or co-authored, is attached as to this report as Exhibit A.
5. I am being compensated at the rate of \$300 per hour for my work as a testifying expert in this matter.

FACTS AND DATA CONSIDERED

6. In addition to the medical studies and news reports cited herein and knowledge I have gained in my decades of working in clinical infectious diseases, infectious disease research, public health, and epidemiology, I also considered documents relating to the Plaintiffs, which I have cited in this report if relied upon, along with the First Amended Complaint filed in this action, *Shirley, et al. v. Washington State Department of Fish and Wildlife, et al.* (Case No. 3:23-cv-05077) and Proclamation 21-14.4 issued by the Governor of the State of Washington.¹

¹ See <https://governor.wa.gov/sites/default/files/proclamations/21-14.4%20-%20COVID-19%20Vax%20WA%20Amendment%20%28tmp%29.pdf>.

THE COVID-19 PANDEMIC

7. COVID-19 is a disease that can result in serious illness or death. It is caused by the SARS CoV-2 virus, which is a coronavirus not identified in humans prior to December 2019 that spreads easily from person to person.
8. As I describe in more detail later in this report, the COVID-19 virus has continued to evolve since December 2019 and there have been (and continue to be) many variants of the virus, with each new variant more infectious than those prior. While these variants have different characteristics, some characteristics have remained consistent across the variants that have developed since December 2019. These characteristics include:
 - COVID-19 spreads mainly from person to person through very small airborne respiratory droplets, usually referred to as aerosols, which are produced when an infected person exhales, coughs, sneezes, or talks.
 - There is a delay of at least a few days after exposure and infection before onset of symptoms.
 - People can spread the virus before their symptoms begin (pre-symptomatic transmission) and during an asymptomatic infection which results in people unknowingly spreading the virus to others. This is similar to other respiratory viruses like influenza.
 - Although many patients experience mild to moderate symptoms, or no symptoms, some patients experience severe or critical illness requiring hospitalization and intensive care treatment, such as the use of ventilators (intubation).
 - A subset of those with severe disease will die. As of September 26, 2024, over 1.2 million people in the U.S. have died due to COVID-19. More than 16,200 have died in Washington State.
 - Older adults and people of any age with certain underlying medical conditions are at higher risk for severe COVID-19 illness.
 - Some COVID-19 survivors experience long-term health complications (sometimes called “long COVID”). These complications include the development of chronic symptoms including debilitating fatigue and body system abnormalities affecting the brain, heart, lungs, and other systems.
9. On January 20, 2020, the U.S. Centers for Disease Control & Prevention (“CDC”) and the Washington State Department of Health (“DOH”) announced what was then believed to be the first confirmed case of COVID-19 in the United States in Snohomish County, Washington.² By late February/early March, public health officials recognized the spread of COVID-19 in Washington, including an individual with COVID-19 from Snohomish

² See CDC, *CDC Museum COVID-19 Timeline*, Mar. 14, 2023, <https://www.cdc.gov/museum/timeline/covid19.html> and Heather P. McLaughlin, et al., *COVID-19 Response Efforts of Washington State Public Health Laboratory: Lessons Learned*, 111(5) Am. J. Public Health 867 (May 2021), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8034017/>.

County who had not traveled, and an outbreak in the Life Care Center, a skilled nursing facility in Kirkland, associated with at least 167 cases and 43 deaths.³ On February 29, 2020, DOH announced that a patient had died in the EvergreenHealth Medical Center in Kirkland, which was then believed to be the first COVID-19 death in the United States. (In April 2020, it was determined that the first known COVID- 19 death had occurred in early February in California.)⁴

10. On January 30, 2020, the World Health Organization declared the COVID-19 outbreak a “public health emergency of international concern.”⁵ On January 31, 2020, then-U.S. Health and Human Services Secretary Alex M. Azar II declared a public health emergency.⁶
11. Over the course of 2020, public health measures designed to limit the spread of COVID-19 (e.g., “lockdown” or “stay home” policies, masking and testing requirements, and social distancing measures) caused enormous disruption to life and work in the United States and Washington State.
12. Since COVID-19 was first detected in the United States, it has disproportionately affected—both in terms of numbers of infections and numbers of severe cases leading to

³ See Asia Fields & Paige Cornwell, *Coronavirus killed hundreds at Washington state’s long-term care facilities. Widespread testing may finally be near*, Seattle Times, Apr. 18, 2020, <https://www.seattletimes.com/seattle-news/coronavirus-killed-hundreds-at-washington-states-long-term-care-facilities-six-weeks-later-widespread-testing-may-finally-near/> (updated May 8, 2020).

⁴ See Asia Fields & Paige Cornwell, *Coronavirus killed hundreds at Washington state’s long-term care facilities. Widespread testing may finally be near*, Seattle Times, Apr. 18, 2020, <https://www.seattletimes.com/seattle-news/coronavirus-killed-hundreds-at-washington-states-long-term-care-facilities-six-weeks-later-widespread-testing-may-finally-near/> (updated May 8, 2020).

⁵ See World Health Organization, *WHO Director-General’s statement on IHR Emergency Committee on Novel Coronavirus (2019-nCoV)*, January 30, 2020, [https://www.who.int/director-general/speeches/detail/who-director-general-s-statement-on-ihf-emergency-committee-on-novel-coronavirus-\(2019-ncov\)](https://www.who.int/director-general/speeches/detail/who-director-general-s-statement-on-ihf-emergency-committee-on-novel-coronavirus-(2019-ncov)). The World Health Organization declared that COVID-19 was an established and ongoing health issue which no longer constitutes a public health emergency of international concern on May 5, 2023; World Health Organization, *Statement on the fifteenth meeting of the IHR (2005) Emergency Committee on the COVID-19 pandemic*, May 5, 2023, [https://www.who.int/news/item/05-05-2023-statement-on-the-fifteenth-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-coronavirus-disease-\(covid-19\)-pandemic](https://www.who.int/news/item/05-05-2023-statement-on-the-fifteenth-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-coronavirus-disease-(covid-19)-pandemic).

⁶ See Administration for Strategic Preparedness and Response, *Determination That a Public Health Emergency Exists*, Jan. 31, 2020, <https://aspr.hhs.gov/legal/PHE/Pages/2019-nCoV.aspx>. The federal public health emergency expired on May 11, 2023; Department of Health and Human Services, *HHS Secretary Xavier Becerra Statement on End of COVID-19 Public Health Emergency*, May 11, 2023, <https://www.hhs.gov/about/news/2023/05/11/hhs-secretary-xavier-becerra-statement-on-end-of-the-covid-19-public-health-emergency.html>.

hospitalizations—certain groups, including the elderly, those with underlying health conditions, and incarcerated individuals.⁷ The Washington State Respiratory Illness Dashboard has tracked outcomes for Washington residents by region throughout the pandemic, including hospitalizations and deaths due to COVID-19 in different demographic groups. In King County, for example, for people aged 65 or older, the hospitalization rate for COVID was 18.4 per 100,000 individuals, compared to less than 10 per 100,000 for all other younger age groups. Similarly, the death rate for those 65 years and older was 4.2 per 100,000, compared to less than 1 per 100,000 for the other age groups.⁸ These rates were consistent with trends elsewhere in Washington and nationally.⁹ In the United States as a whole, in January 2021, the COVID-19 hospitalization rate peaked at 21 per 100,000 people and, after a decrease, rose again to 12.6 per 100,000 people in July 2021. Those over 65 years of age were disproportionately impacted in all areas of the US.¹⁰ COVID-19 also disproportionately affected members of certain racial and ethnic groups including Black, Hispanic, American Indian/Alaska Native, and Native Hawaiian/Pacific Islander.¹¹ These disproportional impacts have been seen both nationally and in Washington State.¹² Low-income populations and those experiencing disabilities have also been disproportionately impacted by COVID-19, especially those with underlying medical conditions or experiencing systemic health and social inequalities.¹³

13. There was (and remains) wide consensus among public health officials that developing an

⁷ See Lewis NM, Salmanson AP, Price A, Risk I, Guymon C, Wisner M, Gardner K, Fukunaga R, Schwitters A, Lambert L, Baggett HC, Ewetola R, Dunn AC. *Community-Associated Outbreak of COVID-19 in a Correctional Facility - Utah, September 2020-January 2021*. MMWR Morb Mortal Wkly Rep. 2021 Apr 2;70(13):467-472. doi: 10.15585/mmwr.mm7013a2. PMID: 33793464; PMCID: PMC8022878.

⁸ See <https://kingcounty.gov/en/dept/dph/health-safety/disease-illness/covid-19/data/covid-summary>.

⁹ See https://data.cdc.gov/Public-Health-Surveillance/Rates-of-COVID-19-Cases-or-Deaths-by-Age-Group-and/3rge-nu2a/about_data.

¹⁰ See <https://covid.cdc.gov/covid-data-tracker/?ref=quillette.com#covidnet-hospitalization-network>.

¹¹ *Ibid.*

¹² See Don Bambino Geno Tai, et al., *Disproportionate Impact of COVID-19 on Racial and Ethnic Minorities in the United States: a 2021 Update*, 9 Journal of Racial and Ethnic Health Disparities 2022, 2334-39, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8513546/>; Public Health – Seattle & King County, *COVID-19 race and ethnicity data*, Feb. 21, 2024, <https://kingcounty.gov/en/legacy/depts/health/covid-19/data/race-ethnicity>.

¹³ See Blair Whittington, *Disparities in COVID-19 Hospitalization at the Intersection of Race and Ethnicity and Income*, 11 Journal of Racial and Ethnic Health Disparities 2, 1116-23 (Apr. 2023), <https://www.cdc.gov/mmwr/volumes/72/wr/mm7226a5.htm>; CDC, *People With Disabilities*, <https://www.cdc.gov/ncbddd/humandevelopment/covid-19/people-with-disabilities.html> (updated July 20, 2022).

effective COVID-19 vaccine was crucial to returning to some semblance of “normal life.”

FDA AUTHORIZATION AND APPROVAL OF VACCINES

14. Scientists began developing COVID-19 vaccines in January of 2020. Recognizing the severe impact of COVID-19 worldwide and drawing on significant work from before the COVID-19 emergency was declared, scientists were able to develop safe, reliable, COVID-19 vaccines with unprecedented speed.¹⁴
15. On December 11, 2020, the U.S. Food and Drug Administration (“FDA”) issued an Emergency Use Authorization (“EUA”) for the use of Pfizer and BioNTech’s COVID-19 vaccine (the “Pfizer vaccine”).
16. On December 18, 2020, the FDA issued an EUA for Moderna TX, Inc.’s COVID19 vaccine (the “Moderna vaccine”).
17. On February 27, 2021, the FDA issued an EUA for the use of the Janssen (Johnson & Johnson) COVID-19 vaccine (the “J&J” vaccine).
18. The Pfizer and Moderna vaccines are messenger RNA (“mRNA”) vaccines, which teach human cells how to make a SARS-CoV-2 virus “spike protein” which elicits a protective immune response and protects the body against future COVID-19 infection. Genetic information encoded in our cells’ DNA is transferred to mRNA, which is used as a template for protein production. The benefit of mRNA vaccines—like all vaccines—is that those vaccinated gain protection against a virus without having to risk the serious consequences of getting sick or dying. Researchers have been studying and working on mRNA vaccine technology for decades. In the 1980s, for example, researchers explored ways to produce mRNA without cell culture, known as *in vitro* transcription. It would take several decades, however, before scientists would determine how to translate that process into an effective vaccine. In 2023, Dr. Katalin Karikó and Dr. Drew Weissman were jointly awarded the Nobel Prize in Physiology or Medicine for their “discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against COVID-19.”¹⁵—The COVID-19 vaccines have been held to the same rigorous safety and

¹⁴ See National Institutes of Health, *Decades in the Making: MRNA COVID-19 Vaccines*, <https://covid19.nih.gov/nih-strategic-response-covid-19/decades-making-mrna-covid-19-vaccines>.

¹⁵ See Nobel Prize, Press Release, Oct. 2, 2023, <https://www.nobelprize.org/prizes/medicine/2023/press-release/>. The Nobel Prize Committee’s Press Release announcing the award describes the 2005 breakthrough that ultimately led to the mRNA vaccines:

“Karikó and Weissman noticed that dendritic cells recognize *in vitro* transcribed mRNA as a foreign substance, which leads to their activation and the release of inflammatory signaling molecules. They wondered why the *in vitro* transcribed mRNA was recognized as foreign while mRNA from mammalian cells did not give rise to the same reaction. Karikó and Weissman realized that some critical properties must distinguish the different types of mRNA.

RNA contains four bases, abbreviated A, U, G, and C, corresponding to A, T, G, and C in DNA, the letters of the genetic code. Karikó and Weissman knew that bases in RNA from mammalian cells are frequently chemically modified, while *in vitro* transcribed mRNA is not. They wondered

effectiveness standards as all other types of vaccines in the United States. These mRNA vaccines initially required administration of two doses for maximum immunity, to be received 21 days apart (for Pfizer) or 28 days apart (for Moderna).

19. The J&J vaccine is an adenovirus-based vaccine. It is a viral vector vaccine that uses a weakened live virus (*i.e.*, an adenovirus) as the delivery method for transporting a recombinant vaccine for COVID-19. Recombinant vaccines use a small piece of genetic material from the virus to trigger an immune response like the response generated by the two mRNA viruses. Only one dose was initially needed for the J&J vaccine.
20. EUAs are used by the FDA during public health emergencies to provide access to medical products that may be effective in preventing or treating a disease. In determining whether to issue an EUA for a vaccine, the FDA evaluates the available evidence and assesses any known or potential risks and any known or potential benefits of the vaccine. If the risk-benefit assessment is favorable, the vaccine is made available during the public health emergency. For the COVID-19 vaccines, the agency evaluated data submitted by the manufacturers about the vaccine's safety and effectiveness, and conducted its own analyses, before reaching each decision and found the data to be "clear and compelling" to support the use of the vaccine for the prevention of COVID-19.¹⁶
21. The FDA's evaluation of the Pfizer vaccine's safety included approximately 38,000 participants who enrolled in an ongoing, randomized, placebo-controlled international study, the majority of whom were U.S. participants. These participants, 18,801 of whom received the vaccine and 18,785 of whom received a saline placebo, were followed for a median of two months after receiving the second dose. The most reported side effects, which typically lasted several days, were pain at the injection site, tiredness, headache, muscle pain, chills, joint pain, and fever. The trials "did not raise any specific safety concerns."¹⁷ Efficacy in preventing confirmed COVID-19 cases was 95.0%, with 8 COVID-19 cases in the vaccine group and 162 COVID-19 cases in the placebo group.¹⁸

if the absence of altered bases in the *in vitro* transcribed RNA could explain the unwanted inflammatory reaction. To investigate this, they produced different variants of mRNA, each with unique chemical alterations in their bases, which they delivered to dendritic cells. The results were striking: The inflammatory response was almost abolished when base modifications were included in the mRNA. This was a paradigm change in our understanding of how cells recognize and respond to different forms of mRNA. Karikó and Weissman immediately understood that their discovery had profound significance for using mRNA as therapy. These seminal results were published in 2005, fifteen years before the COVID-19 pandemic."

¹⁶ See FDA, *The Path for a COVID-19 Vaccine from Research to Emergency Use Authorization*, <https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines#eua-vaccines>.

¹⁷ See FDA, *Emergency Use Authorization (EUA) for an Unapproved Product Review Memorandum: Pfizer-BioNTech COVID-19 Vaccine* (Dec. 11, 2020), <https://www.fda.gov/media/144416/download>.

¹⁸ *Ibid.*

22. The FDA's evaluation of the Moderna vaccine's safety and efficacy included a randomized, double-blinded, and placebo-controlled trial of approximately 30,400 participants. Efficacy in preventing confirmed COVID-19 cases occurring at least 14 days after the second dose of the vaccine was 94.5% percent, with 5 COVID-19 cases in the vaccine group and 90 COVID-19 cases in the placebo group. Safety data from a November 11, 2020, interim analysis of approximately 30,350 participants with a median of seven weeks of follow-up after the second dose supported a favorable safety profile, with no specific safety concerns identified that would preclude the issuance of an EUA. The most common adverse reactions were pain at the injection site, fatigue, headache, muscle pain, joint pain, and chills.¹⁹
23. The FDA's evaluation of the J&J vaccine included a randomized, double-blinded, and placebo-controlled trial of a single dose of the vaccine in approximately 40,000 participants.²⁰ Efficacy in preventing COVID-19 cases occurring at least 14 days after the single-dose vaccination was 66.9%. Safety analysis supported a favorable safety profile with no specific safety concerns identified that would preclude the issuance of an EUA. The most common adverse reactions were injection site pain, headache, fatigue, and myalgia. Although the J&J vaccine can in rare cases cause a serious type of blood clots, they have occurred in fewer than one in a million cases. This rare but serious side effect led the FDA in May 2022 to modify its EUA for the J&J vaccine to "individuals 18 years of age and older for whom other authorized or approved COVID-19 vaccines are not accessible or clinically appropriate, and to individuals 18 years of age and older who elect to receive the Janssen COVID-19 Vaccine because they would otherwise not receive a COVID-19 vaccine."²¹
24. These positive clinical results held true in the real world after the EUAs were issued. In April 2021, Pfizer announced that its vaccine had 91.3% efficacy against COVID-19, based on how well it prevented symptomatic COVID-19 infection seven days through up to six months after the second dose.²² It also found it to be 100% effective in preventing severe disease as defined by the U.S. Centers for Disease Control & Prevention (CDC), and 95.3%

¹⁹ See FDA, *Emergency Use Authorization (EUA) for an Unapproved Product Review Memorandum: Moderna COVID-19 Vaccine/mRNA-1273* (Dec. 18, 2020), <https://www.fda.gov/media/144673/download>.

²⁰ See FDA, *Emergency Use Authorization (EUA) for an Unapproved Product Review Memorandum: Janssen COVID-19 vaccine (Ad26.COV2.S)* (Feb. 27, 2021), <https://www.fda.gov/media/146338/download>.

²¹ See FDA, *Coronavirus (COVID-19) Update: FDA Limits Use of Janssen COVID-19 Vaccine to Certain Individuals*, (May 5, 2022), <https://www.fda.gov/media/158318/download#:~:text=Specifically%2C%20CBER%20has%20determined%20that,elect%20to%20receive%20the%20Janssen>.

²² See Pfizer and BioNTech *Confirm High Efficacy and No Serious Safety Concerns Through Up to Six Months Following Second Dose in Updated Topline Analysis of Landmark COVID-19 Vaccine Study*, Pfizer (April 1, 2021), <https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-biontech-confirm-high-efficacy-and-no-serious>.

effective in preventing severe disease as defined by the FDA.²³ Similarly, Moderna announced in April 2021 that its vaccine had greater than 90% efficacy against cases of COVID-19 and more than 95% efficacy against severe cases.²⁴

25. Initially, the COVID-19 vaccines were approved for emergency use only by adults 18 and over who are not pregnant and have healthy immune systems. After additional study, however, the FDA later extended the authorization of all three COVID-19 vaccines for pregnant women, moderately or severely immunocompromised individuals, and the Pfizer vaccine for all people 12 years of age and older. Thus, the only group for whom the Pfizer and Moderna vaccines (together, the “mRNA vaccines”) are currently contraindicated are those acutely allergic to their ingredients—specifically polyethylene glycol or polysorbate—which is estimated to occur in only 2.5 to 11.1 cases per 1 million doses.²⁵
26. On August 23, 2021, the FDA approved the first vaccine—the Pfizer vaccine—for the prevention of COVID-19 disease in individuals 16 years of age and older.²⁶
27. On January 31, 2022, the FDA announced the second approval of a COVID-19 vaccine—the Moderna COVID-19 vaccine for the prevention of COVID-19 disease in individuals 18 years of age and older.²⁷
28. On June 17, 2022, the FDA extended the EUAs of both mRNA vaccines to include use in children as young as six months of age.²⁸
29. Data also shows that COVID-19 vaccination is safe for pregnant people. Studies assessing vaccination early in pregnancy did not find an increased risk of miscarriage among

²³ *Ibid.*

²⁴ See Berkeley Lovelace, Jr., *Moderna says new data shows its Covid vaccine is more than 90% effective against virus six months after second shot*, CNBC (April 13, 2021), <https://www.cnbc.com/2021/04/13/covid-vaccine-moderna-says-new-data-shows-its-90percent-effective-six-months-after-second-dose.html>; Kathy Katella, *Comparing the COVID-19 Vaccines: How Are They Different*, Yale Medicine, Aug. 26, 2021, <https://www.yalemedicine.org/news/covid-19-vaccine-comparison>.

²⁵ See Kimberly G. Blumenthal et al., *Acute Allergic Reactions to mRNA COVID-19 Vaccines*, 325 JAMA 1562 (2021) <https://jamanetwork.com/journals/jama/fullarticle/2777417>.

²⁶ See Letter of Authorization, FDA (Aug. 23, 2021), <https://www.fda.gov/media/144416/download>.

²⁷ See Letter of Authorization, FDA (Jan. 31, 2022), <https://www.fda.gov/media/155815/download>.

²⁸ See CDC Advisory Committee On Immunization Practices, *Grading of Recommendations, Assessment, Development and Evaluation (GRADE): Pfizer-BioNTech COVID-19 Vaccine for Children Aged 6 Months-4 Years*, [https://www.cdc.gov/acip/grade/covid-19-pfizer-biontech-vaccine-6-months-4-years.html](https://www.cdc.gov/acip/grade/covid-19-pfizer-biontech-vaccine-6-months-4-years.html?CDC_AAref_Val=https://www.cdc.gov/vaccines/acip/recs/grade/covid-19-pfizer-biontech-vaccine-6-months-4-years.html); <https://www.cdc.gov/vaccines/acip/recs/grade/covid-19-pfizer-biontech-vaccine-6-months-4-years.html>.

pregnant people who received an mRNA COVID-19 vaccine.²⁹ The CDC has instead recommended that pregnant people get vaccinated against COVID-19, in part because they are at a higher risk of becoming severely ill from the disease compared to non-pregnant people.³⁰

30. As of November 2023, more than 13.5 billion COVID-19 vaccine doses had been administered around the world, and more than 5.4 billion people (67% of the global population) had received a complete primary series of a COVID-19 vaccine.³¹ More than 270 million Americans (81.4% of the population) have received at least one COVID-19 vaccine dose, and 230 million Americans (69.5%) have completed a primary series.³²

²⁹ See CDC, COVID-19 Vaccination for People Who Are Pregnant or Breastfeeding, https://www.cdc.gov/covid/vaccines/pregnant-or-breastfeeding.html?CDC_AAref_Val=https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/pregnancy.html; Tom T. Shimabukuro, et al., *Preliminary Findings of mRNA Covid-19 Vaccine Safety in Pregnant Persons*, 384 New England J. Med. 2273 (2021), <https://www.nejm.org/doi/full/10.1056/nejmoa2104983>.

³⁰ See CDC, *COVID-19 Vaccines While Pregnant and Breastfeeding*, <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/pregnancy.html> (updated Nov. 3, 2023).

³¹ See World Health Org., *COVID-19 vaccination, World data* (Nov. 26, 2023), <https://data.who.int/dashboards/covid19/vaccines>.

³² See CDC, *COVID-19 Vaccinations in the United States* (final update May 11, 2023), https://covid.cdc.gov/covid-data-tracker/#vaccinations_vacc-people-booster-percent-pop5.

WHY VACCINES ARE SO IMPORTANT

31. People should get vaccinated regardless of whether they already were infected with COVID-19 for several reasons. First, research has not yet shown how long a person who had COVID-19 will be protected from getting COVID-19 again after recovery.³³ Individuals who have had COVID-19 might have some antibodies even after their infection has passed that provide protection against COVID-19. But the amount of protection that these individuals have against the virus varies from person to person and wanes over time. As these individuals' natural immunity decreases, their risk of contracting COVID-19 increases. As a result, unless vaccinated, they would need to get infected again, along with the entire range of potential effects (including death), to regain any level of subsequent immunity.
32. Second, studies show that being fully vaccinated provides better protection as compared to having recovered from COVID-19. A CDC study of individuals with previous COVID-19 infections through June 2021 found that those who were unvaccinated had 2.34 times the odds of reinfection compared with those who were fully vaccinated.³⁴ These findings, and others, suggest that among people who have had COVID-19 previously, getting fully vaccinated provides additional protection against reinfection.³⁵
33. Other studies have found stronger immune response with vaccination after infection with COVID-19, including both higher levels of antibodies and longer duration of protection.³⁶
34. The evidence also suggests that vaccines are effective at reducing the risk and severity of so-called "long COVID."³⁷

³³ See COVID-19 Vaccine Frequently Asked Questions, CDC, https://www.cdc.gov/covid/vaccines/faq.html?CDC_AAref_Val=https://www.cdc.gov/coronavirus/2019-ncov/vaccines/faq.html.

³⁴ See Alyson M. Cavanaugh, et al., *Reduced Risk of Reinfection with SARS-CoV-2 after COVID-19—Kentucky, May–June 2021*, 70 Morbidity & Mortality Weekly Report 1081 (Aug. 13, 2021), https://www.cdc.gov/mmwr/volumes/70/wr/mm7032e1.htm?s_cid=mm7032e1_w.

³⁵ See also Leonidas Stamatatos, et al., *mRNA vaccination boosts cross-variant neutralizing antibodies elicited by SARS-CoV-2 infection*, 372 Science 1413 (2021), <https://pubmed.ncbi.nlm.nih.gov/33766944/>.

³⁶ See Thomas W. McDade, et al., *Durability of antibody response to vaccination and surrogate neutralization of emerging variants based on SARS-CoV-2 exposure history*, 11 Scientific Reports 17325 (Aug. 30, 2021), <https://www.nature.com/articles/s41598-021-96879-3>; Alice Cho, et al., *Anti-SARS-CoV-2 Reporter Binding Domain Antibody Evolution after mRNA*, 600 Nature 517-522 (2021), <https://www.biorxiv.org/content/10.1101/2021.07.29.454333v2>.

³⁷ See Greg Vanichkachorn, et al., *Potential reduction of post-acute sequelae of SARS-CoV-2 symptoms via vaccination*, 71 Journal of Investigative Medicine 8 (2023), <https://journals.sagepub.com/doi/10.1177/10815589231191812>; Oyungerel Byambasuren, et al., *Effect of covid-19 vaccination on long covid: systemic review*, 2 BMJ 1 (2023), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9978692/>.

35. The CDC and FDA do not recommend that people use antibody or serology tests, which look for antibodies from a previous infection or from vaccination, to assess the need for vaccination in an unvaccinated person or assess immunity to SARS-CoV-2.³⁸ This is because antibody tests have variable sensitivity and specificity, as well as positive and negative predictive values, and are not authorized for the assessment of immune response in vaccinated people. Furthermore, the serologic correlates of protection have not been established, and antibody testing does not evaluate the cellular immune response, which may also play a role in vaccine-mediated protection.
36. Antibody or T-cell tests are also of limited value in assessing any protection from subsequent infection. Generally, these tests do not quantitate the level of immune response, and the outcome is only “positive” or “negative.” Having a positive result indicates only that there is a high likelihood that the person was infected at some time in the past. It does not imply that the person has any protection from subsequent infection, it does not indicate which variant led to the infection, and does it impact any recommendation to be vaccinated.³⁹
37. Someone who would rather get infected with SARS-CoV-2 and subsequently develop COVID-19 as a means to develop some level of temporary immunity would not be making a rational choice from a medical or a public health perspective. During the emergency phase of the pandemic, that choice would have entailed substantial risks to one’s own health and to the health of others. COVID-19 infection continues to be associated with a range of outcomes including severe acute illness and death, serious, persistent symptoms due to long COVID, and other connected gastrointestinal, pulmonary, reproductive, immune, nervous, and cardiovascular system syndromes.⁴⁰ This novel virus and the diseases that it causes continue to be studied, and with our limited understanding, an intervention like vaccination that decreases infection and/or disease severity is extraordinarily important and warranted. Infected individuals also risk infecting others in their family, social community, work circles, and anyone else with whom they come in contact. Infection with COVID-19 can quickly spread to others; and each afflicted person can be a public health threat given the highly infectious nature of the virus, especially when COVID-19 was raging in late 2021 and early 2022. Importantly, infected individuals can transmit the infection prior to

³⁸ See CDC, *Interim Guidelines for COVID-19 Antibody Testing*, https://archive.cdc.gov/www_cdc_gov/coronavirus/2019-ncov/hcp/testing/antibody-tests-guidelines.html; FDA, *Antibody (Serology) Testing for COVID-19: Information for Patients and Consumers*, <https://www.fda.gov/medical-devices/coronavirus-covid-19-and-medical-devices/antibody-serology-testing-covid-19-information-patients-and-consumer>.

³⁹ See Sudeb C. Dalai, et al., *Clinical Validation of a Novel T-Cell Receptor Sequencing Assay for Identification of Recent or Prior Severe Acute Respiratory Syndrome Coronavirus 2 Infection*, 75 *Clinical Infectious Diseases* 2079 (May 6, 2022), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9129217/>.

⁴⁰ See Davis et al., *Long COVID: major findings, mechanisms and recommendations*, 21 *Nature Reviews Microbiology* 133, (Apr. 17, 2023), <https://doi.org/10.1038/s41579-022-00846-2>; Jin-Gyu Cheong, et al., *Epigenetic memory of coronavirus infection in innate immune cells and their progenitors*, 2023 *Cell* 186, 1-21, <https://doi.org/10.1016/j.cell.2023.07.019>.

developing any symptoms while assuming they are not infectious.⁴¹ Similarly, some people may be asymptomatic throughout their entire infection and unknowingly infect those around them.⁴²

38. All these issues outweigh any infection-mediated immunity benefits. Vaccines are safe, effective, and associated with mild side effects and a greatly reduced risk of severe illness or death.
39. Additionally, the benefits of some equipment thought of as protective are not supported by research findings. For example, plastic barriers or shields were frequently deployed during the pandemic as a “common-sense” intervention to prevent transmission when physical distancing was not possible. The basis for the use of these physical barriers was to block the flow of infectious droplets from the infected person to the uninfected person on the other side of the barrier. Critically, there were no real data to support the use of these tools, especially after it was established that the primary mode of COVID-19 transmission was aerosol-based and not droplets.⁴³ Aerosols, as floating “clouds” of invisible particles can easily move around, including around barriers and through any openings in the barriers. In a study by Cadnum, *et al.*, it was shown that barriers with any openings were ineffective.⁴⁴ The same research group published another study highlighting that barriers can increase the risk of transmission to the person behind the barrier.⁴⁵ Air is brought into and removed from built environments based on the known structure of that environment and plastic barriers interfere with mechanical ventilation and airflow and can increase the

⁴¹ See Liu Y; Centre for Mathematical Modelling of Infectious Diseases nCoV Working Group; Funk S, Flasche S. *The contribution of pre-symptomatic infection to the transmission dynamics of COVID-2019*. Wellcome Open Res. 2020 Apr 1;5:58. doi: 10.12688/wellcomeopenres.15788.1. PMID: 32685697; PMCID: PMC7324944; Song Y, Shim E. *Proportion of Pre-Symptomatic Transmission Events Associated with COVID-19 in South Korea*. J Clin Med. 2022 Jul 6;11(14):3925. doi: 10.3390/jcm11143925. PMID: 35887689; PMCID: PMC9324033.

⁴² See Shi N, Huang J, Ai J, Wang Q, Cui T, Yang L, Ji H, Bao C, Jin H. *Transmissibility and pathogenicity of the severe acute respiratory syndrome coronavirus 2: A systematic review and meta-analysis of secondary attack rate and asymptomatic infection*. J Infect Public Health. 2022 Mar;15(3):297-306. doi: 10.1016/j.jiph.2022.01.015. Epub 2022 Jan 31. PMID: 35123279; PMCID: PMC8801962.

⁴³ See JC Chamary, *Why Face Shields and Plexiglass Barriers Don't Block Coronavirus*, Forbes, Oct 23, 2020, <https://www.forbes.com/sites/jvchamary/2020/10/23/covid19-coronavirus-aerosols/?sh=5c3f82bc1541>.

⁴⁴ See Cadnum JL, et al., *Do plexiglass barriers reduce the risk for transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)?*, 44 Infection Control & Hospital Epidemiology 2023, 1010-13, <https://pubmed.ncbi.nlm.nih.gov/34726150/> (e-published in Nov. 2021).

⁴⁵ See Cadnum JL, et al., *Real-World Evidence on the Effectiveness of Plexiglass Barriers in Reducing Aerosol Exposure*. 4 Pathogens & Immunity 2022, 66-77, <https://pubmed.ncbi.nlm.nih.gov/36381131/>.

concentration of infectious aerosols on the “protected” side of the barrier.⁴⁶ Notably, the CDC does not include the use of plastic barriers as a tool to reduce the risk of COVID-19.⁴⁷ Protective equipment like these plastic barriers are not effective tools for mitigation, especially when compared to vaccination programs.

40. Likewise, use of personal protective equipment is a complement—not a substitute—for getting vaccinated. Masks and vaccines share the goal of preventing infection, disease, and virus transmission, and they accomplish it in complementary ways. Masks shore up protection on the outside; vaccines shore up security through immunity from the inside. Moreover, a work-based masking requirement applies only while employees are at work. Those employees may become infected while outside of work, for example at home where one would not be expected to wear a mask. Vaccines, on the other hand, are effective around the clock and are independent of human behavior. Operationalizing a mask and/or physical distancing requirement relies on adherence to policies that are difficult to enforce or to evaluate adherence to. The protection of masking is also dependent on which mask or respirator is used, how it is worn, and supplies. For example, wearing a mask below the nose reduces masking effectiveness but is commonly seen among people wearing masks in work and public settings.
41. Researchers from the Yale School of Public Health estimated by the end of June 30, 2021, COVID-19 vaccines prevented nearly 280,000 deaths and 1.25 million hospitalizations in the United States.⁴⁸
42. By December 2021, those estimates increased to vaccines preventing over 1 million deaths and 10 million hospitalizations in the United States.⁴⁹ The majority of these prevented deaths and hospitalizations would have occurred in the late summer and fall of 2021.⁵⁰

⁴⁶ See Tara Paker-Pope, *Those Anti-Covid Plastic Barriers Probably Don't Help and May Make Things Worse*, N.Y. Times, Aug. 19, 2021, <https://www.nytimes.com/2021/08/19/well/live/coronavirus-restaurants-classrooms-salons.html>; Vuorinen V, et al., *Modelling aerosol transport and virus exposure with numerical simulations in relation to SARS-CoV-2 transmission by inhalation indoors*, 130 Saf Sci. 2020, <https://pubmed.ncbi.nlm.nih.gov/32834511/>.

⁴⁷ See *Ventilation in Buildings*, CDC, <https://www.cdc.gov/coronavirus/2019-ncov/community/ventilation.html> (updated May 12, 2023).

⁴⁸ See Alison Galvani, et al., *Deaths and Hospitalizations Averted by Rapid U.S. Vaccination Rollout*, The Commonwealth Fund, Jul. 7, 2021, <https://www.commonwealthfund.org/publications/issue-briefs/2021/jul/deaths-and-hospitalizations-averted-rapid-us-vaccination-rollout>.

⁴⁹ See Eric Schneider, et al., *The U.S. COVID-19 Vaccination Program at One Year: How Many Deaths and Hospitalizations Were Averted*, The Commonwealth Fund, Dec. 14, 2021, <https://www.commonwealthfund.org/publications/issue-briefs/2021/dec/us-covid-19-vaccination-program-one-year-how-many-deaths-and>.

⁵⁰ *Ibid.*

43. At the end of 2022, those estimated numbers increased yet again. Researchers now estimate COVID-19 vaccines in the U.S. prevented over 3 million deaths and 18 million hospitalizations.⁵¹ In a more recent study evaluating the impact of COVID-19 vaccines in select Latin American and Caribbean countries, researchers estimated that between 610,000 and 2,610,000 deaths were prevented due to vaccination.⁵² It has clearly been shown throughout all phases of the pandemic that COVID-19 vaccines are safe and reduce infection rates, transmission, disease severity, long COVID, and death due to COVID-19.

⁵¹ See Megan Fitzpatrick, et al., Two Years of U.S. COVID-19 Vaccines Have Prevented Millions of Hospitalizations and Deaths, The Commonwealth Fund, December 13, 2022, <https://www.commonwealthfund.org/blog/2022/two-years-covid-vaccines-prevented-millions-deaths-hospitalizations>.

⁵² See Alexandra Savinkina, Daniel M Weinberger, Cristiana M Toscano, Lucia H De Oliveira, Estimated deaths averted in adults by COVID-19 vaccination in select Latin American and Caribbean Countries, *Open Forum Infectious Diseases*, 2024, <https://doi.org/10.1093/ofid/ofae528>.

WHY TESTING IS NOT AN ALTERNATIVE TO VACCINATION

44. Alternatives to vaccination, such as regular COVID-19 testing, would not have been an adequate public health strategy to defeat COVID-19. Unvaccinated people, subject to regular testing, are among positive cases that have caused outbreaks in Washington State.
45. In addition, tests are not 100% accurate. There are 2 types of tests: polymerase chain reaction (“PCR”) tests and antigen tests. PCR testing must be administered by a healthcare worker, which most non-healthcare employers would have to hire to obtain the specimens. While getting a PCR test at a dedicated testing facility is possible, doing so would require additional time away from work, and reliance on the delivery of results by the employee to the employer in a timely fashion. Both factors lead to more delay between the swab being obtained and the receipt of a potentially positive test result, and more time for exposing more coworkers and members of the public to COVID-19. Accordingly, regular PCR tests would likely require an infrastructure for supplying swabs and transport media, transportation of the specimens to a contracted lab, and a mechanism for the lab results to be communicated back to the employer. There would need to be a tracking database, and a person assigned to tracking the tests, test cadence, and test results. A person with knowledge of medical testing result interpretation would need to be available to provide recommendations based on the test results, which are often ambiguous. With ambiguous results, the worker may be required to remain at home in isolation when not infected. For most employers outside of healthcare, this would be a complex and likely costly process that, in 2021 and 2022, would need to be maintained indefinitely as the direction of the pandemic was very much unknown.
46. PCR tests can take a day or more to return results. The sensitivity of this test is very good but can remain positive for weeks after resolution of infection, during which time a person could be re-infected, and the new infection would not be detected. Accordingly, regular PCR testing may fail to detect a COVID-19 infection. In addition, individuals can be infected with and transmit COVID-19 while they are either asymptomatic or in a pre-symptomatic phase. This means that a person, while waiting for her test result, would be working with others, and potentially transmitting COVID-19.
47. The alternative approach is to use “rapid” antigen tests. Importantly, at the time of Plaintiffs’ accommodation requests, these tests were not FDA approved for testing asymptomatic people or for screening purposes. This is due to the poor sensitivity of an antigen test even for symptomatic individuals. A test with poor sensitivity means that a person could have a negative test while they are in fact infected, allowing them to work and to transmit COVID-19. Such a false negative test may also encourage behaviors that increase the risk of transmission based on the mistaken belief that the individual is not infected. And, like PCR testing, antigen testing requires supplies and an infrastructure for test administration and data tracking.
48. For example, in a study reviewing publications through March 2021 concluded that even for indicated use (a symptomatic person), the rapid (antigen) tests fail to positively detect infection approximately 20% to 30% of the time.⁵³ For asymptomatic individuals,

⁵³ See Dinnes, J., et al., *Rapid, point-of-care antigen tests for diagnosis of SARS-CoV-2 infection*, 7 Cochrane Database of Systemic Reviews 2022,

sensitivity of the rapid (antigen) tests (the ability to detect infection when infection is present) ranges from 35.8% to 71%. In a review of studies of rapid (antigen) tests used for this purpose, researchers found that roughly half of those identified by PCR tests as infected had a negative rapid (antigen) test.⁵⁴ The conclusion of the study authors was as follows: “The results of this rapid review indicate serious issues in misidentifying asymptomatic individuals as COVID-19 negative, when in fact they are infected and carrying the SARS-CoV-2 virus.”⁵⁵

49. It is also possible for a worker to test negative on a given day, contract COVID-19 the next day, and be contagious before the next test occurs. In the meantime, that unvaccinated individual could have potentially exposed their families, colleagues, or other persons with whom they come into contact to COVID-19. The turn-around time from obtaining a test swab to having an actionable result also varies. For the more accurate PCR tests, result times vary from, at a minimum 6 to 8 hours, to days. During this time, infected employees would be exposing all those around them. Rapid antigen tests allow for faster results but have a significantly higher rate of false negatives. A false negative would also result in infected employees exposing all those around them.⁵⁶
50. Because PCR tests can take multiple days to return results, even if the Plaintiff submitted to PCR tests every day, that would not avoid the risk that they would be infected with and/or transmit COVID-19 while at work. And because of the risks of false negative PCR tests and asymptomatic infection and transmission, a regimen of daily PCR testing would similarly not avoid those risks.
51. Further, at various points during the emergency phase of the pandemic there were shortages of rapid antigen tests, which would create serious issues for protocols that are over-reliant on testing to prevent infected individuals from spreading the virus.⁵⁷
52. The cited studies in this document and recommendations from national, state, and local public health officials, strongly support the conclusion that vaccination combined with non-pharmaceutical interventions (NPIs) like sick leave, masking, social distancing, and testing, was superior to using NPIs alone. There are no studies demonstrating that NPIs

<https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD013705.pub3/full> (originally published August 26, 2020 and updated March 24, 2021, and July 22, 2022).

⁵⁴ See Alyssa M. Indelicato, et al., *Rapid Antigen Test Sensitivity for Asymptomatic COVID-19 Screening*, 6 PRIMER 18 (2022), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9258726/#:~:text=Sensitivity%20ranged%20from%2035.8%25%20to,the%20higher%20number%20about%20exposure>.

⁵⁵ *Ibid.*

⁵⁶ See CDC, *COVID-19 Testing: What You Need to Know*, Sept. 25, 2023, <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/testing.html>.

⁵⁷ See CDC, *Lab Advisory: Shortage of COVID-19 Rapid Tests May Increase Demand for Laboratory Testing*, Sept. 2, 2021, https://www.cdc.gov/locs/2021/09-02-2021-lab-advisory-Shortage_COVID-19_Rapid_Tests_Increase_Demand_Laboratory_Testing_1.html.

alone were or are equivalent to NPIs plus vaccination to reduce the risk of infection and transmission in the workplace. Attached hereto as Exhibit B are two illustrative documents that demonstrate the hierarchy of potential methods for preventing infection and virus transmission.

STATE OF WASHINGTON 2021 VACCINE REQUIREMENTS AND POST-VACCINE VARIANTS

53. In the late summer and early fall of 2021, Governor Inslee issued several iterations of Proclamation 21-14 (“State Proclamation”), which collectively prohibited most state employees from working after October 18, 2021, without being fully vaccinated against COVID-19.⁵⁸ When it took effect, the State Proclamation applied to three covered sectors—state government, healthcare, and education.
54. At the time of the State Proclamation, COVID-19 cases were spiking due to the Delta variant despite other strategies in place. Attached hereto as Exhibit C are true and correct copies of the Washington Department of Health and King County Public Health dashboard reports showing the spikes in cases, hospitalizations, and deaths during the Delta wave. The Delta variant was more than twice as infectious as earlier strains. Virus cases approached levels last seen in the winter 2020 COVID-19 surge. As of July 30, the DOH said 1 in 172 Washington residents was estimated to have an active COVID-19 infection.⁵⁹ By August 6, 1 in 156 Washington residents was estimated to have an active COVID-19 infection.⁶⁰ The increase in COVID-19 infections put a strain on hospitals already dealing with staffing challenges, which was compounded by an increase in staff who have tested positive for the virus. Hospitalizations in the state due to COVID-19 were at an all-time high in late August of 2021.⁶¹ At the time, unvaccinated individuals between the ages of 16 and 64 were 10 times more likely to be hospitalized than those who were vaccinated.⁶² In September of 2021, 95% of hospitalized patients were unvaccinated.⁶³ In the period leading up to December 2021, in King County unvaccinated persons were 4.5x more likely to test positive for COVID-19 than fully vaccinated persons, 32x more likely to be hospitalized, and 40x more likely to die. Attached as Exhibit D is a true and correct copy of Seattle and King County Public Health COVID-19 Outcomes by Vaccination Status. This was likely

⁵⁸ See Office of Washington Governor Jay Inslee, *Proclamations*, Procl. 21-14.1 at 4, Aug. 20, 2021, <https://governor.wa.gov/sites/default/files/proclamations/21-14.1%20-%20COVID-19%20Vax%20Washington%20Amendment.pdf>.

⁵⁹ King 5, *Delta variant causing COVID-19 cases to spread 'like wildfire' in Washington*, Aug. 15, 2021, <https://www.king5.com/article/news/health/coronavirus/delta-variant-covid-19-infections-spreading-washingtonstate/281-4bace20b-469e-4e00-8dbe-ce15c5cf32e6>.

⁶⁰ Rich Mendez, *Washington state Covid transmission and hospitalizations hit all-time high*, CNBC, Aug. 20, 2021, <https://www.cnbc.com/2021/08/20/covid-washington-state-infections-and-hospitalizations-hit-record.html>.

⁶¹ See Rich Mendez, *Washington state Covid transmission and hospitalizations hit all-time high*, CNBC, AugustAug. 20, 2021, <https://www.cnbc.com/2021/08/20/covid-washington-state-infections-and-hospitalizations-hit-record.html>.

⁶² *Ibid.*

⁶³ See Kate Walter, *Washington state Covid-19 hospitalizations still at 'sobering' levels*, KUOW, Sep. 13, 2021, <https://www.kuow.org/stories/washington-state-covid-19-hospitalizations-still-at-sobering-levels>.

because COVID-19 vaccines provided strong protection against infection during the Delta phase, with vaccine efficacy rates up to high 80s%.

55. Data suggested the Delta variant caused more severe illness than previous variants in unvaccinated people. In studies conducted in Scotland and Canada, patients infected with the Delta variant were more likely to be hospitalized than patients infected with other strains of the virus.⁶⁴ The data also suggested that the Delta variant was more infectious and that unvaccinated individuals were likely to be infectious for longer than vaccinated individuals.⁶⁵
56. At the time of the State Proclamation, data also suggested that vaccination offered higher protection than previous COVID-19 infection. In a CDC study spanning from January to September of 2021, participants were over five times more likely to have COVID-19 again if they were unvaccinated and had a prior infection.⁶⁶ A separate September 2021 CDC report found that unvaccinated people were five times more likely to contract, ten times more likely to be hospitalized with, and eleven times more likely to die from COVID-19 than those who were fully vaccinated.⁶⁷ And, as the CDC stated in August 2021, “[t]he Delta variant causes more infections and spreads faster than earlier forms of the virus that causes COVID-19,” but “[v]accines continue to reduce a person’s risk of contracting the virus that causes COVID-19, including this variant.”⁶⁸
57. The Delta variant was followed by the Omicron waves. On November 25, 2021, scientists in South Africa identified a new variant, which would later be named Omicron.⁶⁹ Less than

⁶⁴ See CDC, *Delta Variant: What We Know About the Science*, August 6, 2021, <https://stacks.cdc.gov/view/cdc/108671>.

⁶⁵ *Ibid.*

⁶⁶ See CDC, *Vaccination Offers Higher Protection than Previous COVID-19 Infection*, Oct. 29, 2021, <https://archive.cdc.gov/#/details?url=https://www.cdc.gov/media/releases/2021/s1029-Vaccination-Offers-Higher-Protection.html>; Catherine H. Bozio, et al., *Laboratory-Confirmed COVID-19 Among Adults Hospitalized with COVID-19-Like Illness with Infection-Induced or mRNA Vaccine-Induced SARS-CoV-2 Immunity – Nine States, January-September 2021*, 70 *Morbidity & Mortality Weekly Report* 1539 (2021), <https://www.cdc.gov/mmwr/volumes/70/wr/mm7044e1.htm>.

⁶⁷ See CDC, *Monitoring Incidence of COVID-19 Cases, Hospitalizations, and Deaths, by Vaccination Status — 13 U.S. Jurisdictions, April 4–July 17, 2021*, 70 *Morbidity & Mortality Weekly Report* 1539 (2021), https://www.cdc.gov/mmwr/volumes/70/wr/mm7037e1.htm?s_cid=mm7037e1_w.

⁶⁸ See CDC, *Benefits of Getting a COVID-19 Vaccine*, Aug. 16, 2021, <https://web.archive.org/web/20211018080349/https://www.cdc.gov/coronavirus/2019-ncov/vaccines/vaccine-benefits.html> (web archive from Oct. 18, 2021).

⁶⁹ See *South Africa detects new variant, prompting new international travel restrictions*, N.Y. Times, Nov. 26, 2021, <https://www.nytimes.com/2021/11/25/world/variant-south-africa-covid.html>.

a month after its discovery in South Africa, Omicron was the dominant strain of the virus in the United States.⁷⁰ When it came to prevention of infection, vaccine effectiveness was lower for the Omicron variant than for the Delta variant at all intervals after vaccination and for all combinations of primary courses and booster doses investigated.⁷¹

58. Though breakthrough infections increased with the Omicron variant, the vaccines, particularly with booster doses, remained highly effective in preventing severe illness caused by Omicron. For example, the World Health Organization held a virtual meeting on March 15, 2022, to review evidence from several studies that assessed COVID-19 vaccine effectiveness against severe Omicron disease using several outcome definitions. After reviewing those studies, the researchers concluded that “current vaccine formulations continue to have utility in preventing the most severe forms of diseases.”⁷² Multiple other studies have found similar results.⁷³
59. Over time, researchers have also updated the vaccines to respond to new variants. In the fall of 2022, new bivalent boosters were introduced that were dramatically more effective

⁷⁰ See Travis Caldwell and Clair Colbert, *Omicron is now the dominant strain of coronavirus in the U.S. according to the CDC*, CNN, Dec. 21, 2021, <https://www.cnn.com/2021/12/20/health/us-coronavirus-monday/index.html>; *Omicron now dominant virus strain in King County, Western WA*, Associated Press, Dec. 21, 2023, <https://apnews.com/article/coronavirus-pandemic-health-seattle-washington-e3e6671b7e863d51700e0e03bcfd70d2> (“[T]he super-infectious variant will soon overtake delta throughout the rest of the state.”).

⁷¹ See Nick Andrews, et al., *Covid-19 vaccine effectiveness against the Omicron (B. 1.1. 529) variant*, 386.16 New England Journal of Medicine 1532 (2022), <https://www.nejm.org/doi/10.1056/NEJMoa2119451>.

⁷² See Daniel R. Feikin, et al., *Assessing vaccine effectiveness against severe COVID-19 disease caused by omicron variant. Report from a meeting of the World Health Organization*, 40 Vaccine 3516 (2022), <https://www.sciencedirect.com/science/article/pii/S0264410X22005230?via%3Dihub>.

⁷³ See Mie Agermose Gram, et al., *Vaccine effectiveness against SARS-CoV-2 infection or COVID-19 hospitalization with the Alpha, Delta, or Omicron SARS-CoV-2 variant: A nationwide Danish cohort study*, Plos Medicine, Sept. 1, 2022, <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003992>; Adam S. Lauring, et al., *Clinical severity of, and effectiveness of mRNA vaccines against, covid-19 from omicron, delta, and alpha SARS-CoV-2 variants in the United States: prospective observational study*, BMJ, Mar. 9, 2022, <https://www.bmj.com/content/376/bmj-2021-069761>; Mark G. Thompson, et al., *Effectiveness of a Third Dose of mRNA Vaccines Against COVID-19—Associated Emergency Department and Urgent Care Encounters and Hospitalizations Among Adults During Periods of Delta and Omicron Variant Predominance*, 71 Morbidity & Mortality Weekly Report 139 (2022), <https://www.cdc.gov/mmwr/volumes/71/wr/mm7104e3.htm>; Hung Fu Tseng, et al., *Effectiveness of mRNA-1273 against SARS-CoV-2 Omicron and Delta variants*, 28 Nature Medicine 1063 (2022), <https://www.nature.com/articles/s41591-022-01753-y>.

at reducing severe COVID-19 cases involving the Omicron variants.⁷⁴

60. It is important to remember that much of what we know now about the virus and the disease was unknown at the time the Proclamation was announced. In 2020 and early 2021, it was unclear exactly how the virus was transmitted and what mitigations, aside from vaccination, were the most effective. As new variants emerged with greater transmission potential and greater pathogenicity, they reshaped our understanding of transmission protection. In 2021, attention turned from a droplet-mediated form of transmission to an aerosol-form of transmission.⁷⁵ Aerosol transmission implied that infections could occur over greater distances than previously thought, including via ventilation ducts, and in spaces that were previously inhabited by individuals with COVID-19. This mechanism explained cases and outbreaks of transmission spread over distance and over time versus direct, near contact. Outbreaks were described in outdoor café settings and in vertically oriented apartments separated by floors and doors but connected by ventilation ducts.⁷⁶ Based on available data at the time of the Proclamation, work in large spaces or even outdoors was not clearly associated with a decreased risk of infection.⁷⁷ Even jobs requiring a significant amount of time spent outdoors could bring employees into proximity with others. As examples, police officers have some of the highest recorded times spent outdoors, but also have some of the highest risks of COVID exposure and infection and COVID-19 was the leading cause of police officer deaths in 2020, 2021, and 2022.⁷⁸ Similarly, there was a well-documented COVID-19 outbreak among wildland firefighters

⁷⁴ See NIH Research Matters, *Bivalent boosters provide better protection against severe COVID-19*, Feb. 7, 2023, <https://www.nih.gov/news-events/nih-research-matters/bivalent-boosters-provide-better-protection-against-severe-covid-19>; Dan-Yu Lin, et al., *Effectiveness of Bivalent Boosters against Severe Omicron*, 388 New England Journal of Medicine 764 (2023), <https://www.nejm.org/doi/full/10.1056/NEJMc2215471>).

⁷⁵ See Julian W. Tang, et al., *Airborne transmission of respiratory viruses including severe acute respiratory syndrome coronavirus 2*, 29(3) Current Opinion Pulmonary Medicine 191, <https://pubmed.ncbi.nlm.nih.gov/36866737/>.

⁷⁶ See Pengcheng Zhao, *Analysis of COVID-19 clusters involving vertical transmission in residential buildings in Hong Kong*, 16(5) Build Simul. Building Simulation 701, (August 31, 2022), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9430008>).

⁷⁷ See Elizabeth L. Yanik, et al., *Occupational characteristics associated with SARS-CoV-2 infection in the UK Biobank during August–November 2020: a cohort study*, 22(1) BMC Public Health 1884 (Oct. 10, 2022), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9549452/>, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9549452/>.

⁷⁸ See Department of Justice, *Line of Duty Deaths Due to COVID-19*, <https://cops.usdoj.gov/ric/Publications/cops-w0902-pub.pdf>; Officers Down Memorial Page, *Honoring Officers Killed in 2021*, <https://www.odmp.org/search/year?year=2021>; Nat'l Law Enforcement Officers Memorial Fund, *2022 End-of-Year Preliminary Law Enforcement Officers Fatalities Report*, <https://nleomf.org/wp-content/uploads/2023/01/2022-EOY-Fatality-Report-FINAL-opt.pdf> (last visited Feb. 16, 2024).

in 2020.⁷⁹

61. In the original epidemiological descriptions of COVID-19 outbreaks, construction workers working in outdoor settings were included among those who were infected.⁸⁰ Subsequent studies have described outdoor outbreaks linked to joggers,⁸¹ campers,⁸² and outdoor market shoppers.⁸³ These facts underscore the risks of transmission even in outdoor settings, let alone large indoor spaces, such as airports, which pose an increased risk of transmission due to their more limited airflow.
62. Though our knowledge has evolved, what we did know in 2021 and 2022 (and what is still true) is that vaccines offer protection against transmission—both indoors and outdoors—and that reducing transmission limits the development of more dangerous variants, eases pressure on extremely overwhelmed health care facilities and saves lives.
63. Based on recommendations from the CDC, the Washington Department of Health, local health jurisdictions, and my own research and understanding, it is my opinion that vaccination was and is the single best tool available for stemming the spread of COVID-19 and its variants, especially when used in combination with other mitigations. Vaccination against COVID-19 is fast (each dose takes about 20 seconds to administer), extremely safe, and highly effective at preventing transmission of the virus and especially severe disease and death. It remains the most important and effective public health tool at our disposal to combat COVID-19. No other public health strategy could effectively meet Washington Department of Fish and Wildlife goals of maintaining critical governmental services and operations while protecting the health, safety, and well-being of its employees, customers, and the public at large.

⁷⁹ See Amanda Reiff Metz, et al., Investigation of COVID-19 Outbreak among Wildland Firefighters during Wildfire Response, Colorado, USA, 2020, 28 Emerging Infectious Diseases 8 (Aug. 1551 (2022), https://wwwnc.cdc.gov/eid/article/28/8/22-0310_article.

⁸⁰ See Ministry of Health Singapore Press Releases, February 14, 2020, <https://www.moh.gov.sg/newshighlights/details/two-more-cases-discharged-nine-new-cases-of-covid-19-infection-confirmed>; David Koh, *Occupational risks for COVID-19 infection*, 70 Occupational Medicine 1 (February 28, 2020); <https://academic.oup.com/occmed/article/70/1/3/5763894?login=true>.

⁸¹ Li Qi, *An Outbreak of SARS-CoV-2 Omicron Subvariant BA.2.76 in an Outdoor Park - Chongqing Municipality, China*, August 2022, PubMed (Nov. 18, 2022) <https://pubmed.ncbi.nlm.nih.gov/36483192/>.

⁸² Na-Young Kim, et al., *The first outbreak of coronavirus disease (COVID-19) at outdoor camping site in South Korea*, 2020, J. Epidemiol. (July 15, 2023) <https://pubmed.ncbi.nlm.nih.gov/37460295/34> J. of Epidemiology (2023) <https://pubmed.ncbi.nlm.nih.gov/37460295/>.

⁸³ Mingyu Luo, et al., *Analysis of a super-transmission of SARS-CoV-2 omicron variant BA.5.2 in the outdoor night market*, 4 Frontiers in Public Health (July 4, 2023), <https://pubmed.ncbi.nlm.nih.gov/37460295/>.

VACCINE HESITANCY AND MISINFORMATION

64. Throughout the emergency phase of the pandemic and through today, people have been exposed to a great deal of information from a variety of sources, including news, public health guidance, fact sheets, infographics, and research, as well as opinions, rumors, myths, and outright falsehoods. The World Health Organization and the United Nations have characterized this unprecedented spread of information as an “infodemic.”⁸⁴
65. Amid all this information, many people have been exposed to health misinformation—*i.e.*, information that is false, inaccurate, or misleading according to the best available evidence at the time. Misinformation has caused confusion and led people to decide not to get a COVID-19 vaccine, along with rejecting other public health measures such as masking and physical distancing.⁸⁵
66. For example, although the only current contraindication to the COVID-19 vaccines is a rare acute allergy to specific ingredients, a survey in 2021 indicated that more than half of unvaccinated adults believed that “getting vaccinated posed a bigger risk to their health than getting infected with the coronavirus.”³¹⁸⁶ The Washington State Department of Health (“DOH”) has taken steps to address this misinformation, with a particular emphasis on providing resources for communities that may be disproportionately impacted by COVID-19. For example, on June 9, 2021, DOH hosted a virtual panel entitled “Stopping Misinformation that Hurts the Black Community” that focused on preventing the spread of misinformation and providing factual statistics and resources about the COVID-19 vaccines. DOH has also collected resources and prepared outreach strategies for communities that may be disproportionately impacted by COVID-19.⁸⁷
67. Because vaccinated persons can become infected, that has led some people to mistakenly believe that there is no difference between vaccinated and unvaccinated persons in terms of their viral loads and/or infection rates. Experts in immunology and in vaccine development agree that there are no “perfectly” effective vaccines, just like there are no

⁸⁴ See World Health Organization, United Nations, et al., *Managing the COVID-19 infodemic: Promoting healthy behaviors and mitigating the harm from misinformation and disinformation*, Sep. 23, 2020, <https://www.who.int/news/item/23-09-2020-managing-the-covid-19-infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation>.

⁸⁵ See e.g., Krista Konger, *How misinformation, medical mistrust fuel vaccine hesitancy*, Stanford Medicine, Sep. 2, 2021, <https://med.stanford.edu/news/all-news/2021/09/infodemic-covid-19.html>.

⁸⁶ See Adela Suliman, *Most unvaccinated Americans believe coronavirus vaccine poses greater health risk than the disease, poll finds*, Wash. Post., Aug. 4, 2021, <https://www.washingtonpost.com/nation/2021/08/04/kff-poll-coronavirus-vaccine-unvaccinated-americans/>.

⁸⁷ See DOH, COVID-19 Vaccine - Equity and Engagement, <https://www.doh.wa.gov/Emergencies/COVID19/VaccineInformation/Engagement#heading758>.

perfectly effective other medications.⁸⁸ There are multiple studies from 2021 that investigated this issue with the COVID vaccines. For example, in a paper published in JAMA in May 2021 that tracked both symptomatic and asymptomatic healthcare workers (“HCW”) in Israel, the rate of symptomatic infection in vaccinated HCW was 4.7 per 100,000 person-days and 149.8 per 100,000 in the unvaccinated cohort.⁸⁹ The asymptomatic infection rate in the vaccinated group was 19.1 per 100,000 person-days and in the unvaccinated group it was 67.9 per 100,000 person-days.⁹⁰ These findings were replicated in multiple other studies supporting reduction of infection and transmission following vaccination.⁹¹ Importantly, the choice to remain unvaccinated impacts not only the health of the person making this decision, but having more unvaccinated people in the population also increases the risk of infection for all people, vaccinated and unvaccinated.⁹²

68. Even if the (unsupported) assertion that viral loads are similar is correct, the rate of both asymptomatic and symptomatic infection in the vaccinated population is statistically and dramatically lower. As a result, both the vaccinated person and all of those around them are at much lower risk of infection.⁹³ Dismissing the benefits of vaccination by stating that some vaccinated people get infected and that those who are infected have similar viral loads is a cognitive error due to a misplaced focus on what happens to those individuals instead of the cumulative, massive decrease in viral load across the population. It is like refusing to wear one’s seatbelt just because some people still get injured in car accidents even when they are wearing their seatbelts.
69. Later studies have found not only a reduced risk of infection and reduced severity of symptoms once infected, but also lower viral loads for both the Delta and Omicron variants (in 2022) among vaccinated frontline and essential workers following vaccination

⁸⁸ See Robert Lea, *Fact Check: Is it Rare for Any Vaccine to Stop All Transmission, Infection?* Newsweek, Oct. 15, 2021, <https://www.newsweek.com/fact-check-rare-vaccine-stop-all-transmission-infection-1638518>; CDC, *Explaining How Vaccines Work*, May 24, 2023, <https://www.cdc.gov/vaccines/hcp/conversations/understanding-vacc-work.html>.

⁸⁹ See Yoel Angel, et al., *Association Between Vaccination with BNT162b2 and Incidence of Symptomatic and Asymptomatic SARS-CoV-2 Infections Among Healthcare Workers*, 325 JAMA 2457 (2021), <https://pubmed.ncbi.nlm.nih.gov/33956048/>.

⁹⁰ *Ibid.*

⁹¹ See Ottavia Prunas, et al., *Vaccination with BNT162b2 reduces transmission of SARS-CoV-2 to household contacts in Israel*, 375 Science 1151 (2022), <https://pubmed.ncbi.nlm.nih.gov/35084937/>; S.T. Tan, et al., *Infectiousness of SARS-CoV-2 breakthrough infections and reinfections during the Omicron wave*, 29 Nature Medicine 358 (2023), <https://www.nature.com/articles/s41591-022-02138-x>.

⁹² See Fisman DN, et al., *Impact of population mixing between vaccinated and unvaccinated subpopulations on infectious disease dynamics: implications for SARS-CoV-2 transmission*. 194 Canadian Medical Association Journal 573 (2022), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9054088/>.

⁹³ *Ibid.*

compared to unvaccinated individuals.^[13]⁹⁴

70. Some people believe that if they observed vaccinated co-workers testing positive for COVID-19 (e.g., during the Omicron waves in late 2021 and early 2022), that means that either unvaccinated persons are at no greater risk for getting and transmitting COVID-19, or that vaccines do not work. As described above, the rate of infection (asymptomatic and symptomatic) is statistically and meaningfully lower in vaccinated individuals and populations compared to unvaccinated individuals and populations. The personal observation that vaccinated individuals got COVID-19 is irrelevant. For example, imagine if there are 100 vaccinated people and 2 unvaccinated people in a workplace. If 5 people in the vaccinated group get infected and 1 in the unvaccinated group gets infected, does this mean that being vaccinated isn't protective? Not at all. The rate of infection in the vaccinated group is 5 per 100 and 50 per 100 in the unvaccinated group. What would happen if vaccinated people were better at getting tested compared to unvaccinated people who did not "believe" in COVID-19 as a risk? This would dramatically change the perception of risk. Did an individual get tested whenever he had respiratory infection symptoms, including "cold symptoms"? Did he get tested following exposure in the household? All these reasons are why we use scientific studies that test and follow large groups of people to determine the impact of an intervention, and in fact commonly required multiple studies that come to the same conclusion. In the United States, these studies are evaluated by the U.S. Food and Drug Administration (FDA), the CDC's Advisory Council on Immunization Practice (ACIP) and other scientific expert before recommendations are made. Attached hereto as Exhibit E is a true and correct copy of the recommendations. A similar process occurs in other countries. Of note, all countries with similar processes have made similar recommendations for COVID-19 vaccination. Due to this process, by the end of 2022, COVID-19 vaccines prevented 18.5 million COVID-19 hospitalizations and 3.2 million deaths in the U.S. alone. Attached hereto as Exhibit F is a true and correct copy of the CDC's Oct. 20, 2023, Morbidity and Mortality Weekly Report.
71. Plaintiffs allege in the Amended Complaint that the COVID-19 vaccines had only a "single" benefit in protecting a vaccinated person from severe illness and death, and that benefit was "disputed" [paragraph 89]. This is incorrect. Abundant research supports the effectiveness of the Pfizer and Moderna mRNA vaccines in preventing symptomatic infection, severe disease (i.e. infection requiring hospitalization), death, and long COVID.⁹⁵ In this review by Fiolet and colleagues, vaccines reduced the per-person risk of symptomatic COVID-19 infection by 78% to 99% when the alpha variant was circulating in early 2021.⁹⁶ Vaccine effectiveness for prevention of symptomatic infection was reduced

⁹⁴ See Mark G. Thompson, et al., *Association of mRNA Vaccination with Clinical and Virological Features of COVID-19*, 328 JAMA 1523 (2022), <https://jamanetwork.com/journals/jama/fullarticle/2797418>.

⁹⁵ See Fiolet T, Kherabi Y, MacDonald CJ, Ghosn J, Peiffer-Smadja N. Comparing COVID-19 vaccines for their characteristics, efficacy and effectiveness against SARS-CoV-2 and variants of concern: a narrative review. *Clin Microbiol Infect.* 2022 Feb;28(2):202-221. doi: 10.1016/j.cmi.2021.10.005. Epub 2021 Oct 27. PMID: 34715347; PMCID: PMC8548286.

⁹⁶ *Ibid*

to about 64% when the Delta variant was circulating.⁹⁷ Protection from severe disease and death remained very high throughout these phases (Alpha through Delta), with protection ranging between 80% and 95% on a per person level.⁹⁸ These findings are confirmed by a Cochrane Review published in 2022.⁹⁹ Of note, Cochrane Reviews are commonly considered a “gold-standard” for evidence-based medicine.

72. Some people suggest that instead of relying on data shared by public health authorities, an employer should rely on what it observes in its workplace regarding COVID-19 positive cases and vaccination status to guide its assessment of COVID-19 risks and ways to reduce them. For the reasons stated above, using small unscientific samples or one’s personal experience are not valid bases for decision making. In the case of pandemics, facilities and employers must use public health recommendations, based on the best available science, to make policy decisions. Employers do not generally have the expertise to collect and to analyze infectious disease data. Research studies on pandemics and vaccines required large teams with representation from a broad array of expertise, ranging from statistics, epidemiology, immunology, laboratory medicine, to clinical personnel. This data is collected and then submitted to a journal that then sends the paper to a group of individuals who are not involved in the study but have expertise in the area being studied. These experts review the data and make a recommendation to publish, improve, or reject the study for publication. When a group of studies support a similar conclusion, public health officials and other experts can make solid recommendations to protect our communities. To act against these recommendations is to take a stand against the basic principles of medical science and science in general that underpin all the scientific advances in our society.
73. Notwithstanding anecdotal observations from a workplace from late 2021 through April 2022, which may not be accurate based on asymptomatic COVID infections, an unvaccinated person was still more likely than a fully vaccinated person to contract and transmit COVID, and to experience serious illness or death from COVID.
74. I am aware that some people have expressed opposition to receiving the COVID-19 vaccines based on the use of HEK293 cells in the development or testing of the Pfizer and Moderna vaccines. HEK293 cells are immortalized human embryonic kidney cells that were isolated in the 1970s. Cell lines from HEK293 cells are widely used in research and biotechnology, including in medication testing. I have used such cells in my own research. HEK293 cells were used in the development of Pfizer and Moderna vaccines to confirm that certain genetic instructions would work in human cells—they were not used to actually produce either vaccine.¹⁰⁰ I also understand that medications that have similarly used

⁹⁷ *Ibid*

⁹⁸ *Ibid*

⁹⁹ See Graña C, Ghosn L, Evrenoglou T, Jarde A, Minozzi S, Bergman H, Buckley BS, Probyn K, Villanueva G, Henschke N, Bonnet H, Assi R, Menon S, Marti M, Devane D, Mallon P, Lelievre JD, Askie LM, Kredo T, Ferrand G, Davidson M, Riveros C, Tovey D, Meerpohl JJ, Grasselli G, Rada G, Hróbjartsson A, Ravaud P, Chaimani A, Boutron I. Efficacy and safety of COVID-19 vaccines. *Cochrane Database Syst Rev.* 2022 Dec 7;12(12):CD015477. doi: 10.1002/14651858.CD015477. PMID: 36473651; PMCID: PMC9726273.

¹⁰⁰ See Priyanka Runwal, *Here are the facts about fetal cell lines and COVID-19 vaccines*, National Geographic, Nov. 19, 2021, <https://www.nationalgeographic.com/science/article/here-are-the->

HEK293 cell lines in testing include acetaminophen (Tylenol), acetylsalicylic acid (aspirin), and ibuprofen (Advil), and that they are used for treatment research for diseases such as Alzheimer's and hypertension.¹⁰¹ I understand that the Novavax COVID-19 vaccine did not use fetal-derived cell lines or tissues in the development, manufacture, or production of the vaccine.¹⁰²

75. I am also aware that some people have expressed the opinion that COVID-19 vaccines contain neurotoxins, hazardous substances, attenuated viruses, animal parts, foreign DNA, albumin from human blood, carcinogens, and chemical wastes that are proven harmful to the human body. Based on my evaluation of all the components of the mRNA vaccines, this is not a correct statement. These vaccines do not contain any of these materials and have been proven repeatedly to be safe and not harmful to the human body, especially compared to what can happen due to a COVID-19 infection.
76. Unfortunately, too many individuals have decided the facts that support COVID-19 vaccination are up for interpretation or are false. As Dr. Francis Collins, a former director of the National Institutes of Health, wrote in the New York Times recently, "Future historians will judge the development of safe and effective mRNA vaccines for COVID in 11 months as one of the greatest medical achievements in human history."¹⁰³ The facts supporting COVID vaccination as a critical intervention to protect individuals and the community are supported by the science.

[facts-about-fetal-cell-lines-and-covid-19-vaccines.](#)

¹⁰¹ *Id.* Other well-known drugs and medications using HEK293 cell lines in testing include: Naproxen (Aleve); Pseudoephedrine (Sudafed); Diphenhydramine (Benadryl); Loratadine (Claritin); Dextromethorphan (Robitussin); Guaifenesin (Mucinex); Calcium Carbonate (Tums); Bismuth Subsalicylate (Pepto-Bismol); Levothyroxine (Synthroid, Levoxyl); Atorvastatin (Lipitor); Amlodipine (Norvasc); Metoprolol (Toprol, Lopressor); Omeprazole (Prilosec, Zegerid); Losartan (Cozaar); Albuterol / Salbutamol (ProAir, Ventolin); Sacubitril (Valsartan, Entesto); Tenapanor (Ibsrela); Etanercept (Enbrel); Azithromycin (Zithromax); Hydroxychloroquine (Plaquenil); Remdesivir (Veklury); Ivermectin (Stromectol). See Matthew Schneider, *If Any Drug Tested on HEK-293 Is Immoral, Goodbye Modern Medicine*, Patheos Blog (Nov. 6, 2021), <https://www.patheos.com/blogs/throughcatholiclenses/2021/01/if-any-drug-tested-on-hek-293-is-immoral-goodbye-modern-medicine/> (collecting medical studies).

¹⁰² See Alexander Tin, *FDA authorizes Novavax as new alternative to mRNA COVID-19 vaccines*, CBS News, July 13, 2022, <https://www.cbsnews.com/news/novavax-fda-authorizes-mrna-alternative-covid-19-vaccines/>.

¹⁰³ See <https://www.nytimes.com/2024/09/20/opinion/covid-vaccines-truth-life-death.html?searchResultPosition=1>.

WASHINGTON FISH AND WILDLIFE'S DECISION THAT IT COULD NOT ACCOMMODATE UNVACCINATED EMPLOYEES

77. On August 9, 2021, Governor Inslee issued an emergency proclamation which prohibited state executive branch employees, on-site contractors, volunteers, and all public and private health care and long-term care workers from working after October 4, 2021, without being fully vaccinated against COVID-19.¹⁰⁴
78. Many of the Plaintiffs, including Shirley, Peters, Frady, Wines, Moats, Stutes, and Juli Anderson, allege in the Amended Complaint that they had “natural immunity” stemming from a previous COVID infection. As explained earlier in this report, this statement is incorrect. What is called “natural immunity” should be referred to as infection-mediated or post-infection immunity. Importantly, any benefit of infection-mediated immunity is limited as these benefits are available only to those who did not die due to COVID. At the time of the vaccine mandate the role of prior immunity was unclear and there was no “acceptable” level of antibodies due to past infection that indicated a level of protection. While it is likely that there is some level of protection following infection, it is unknown how long that protection lasts nor how effective that protection would be with emerging variants. For example, if a person was infected by a Delta variant in early summer 2021, would that provide protection when Omicron surged in January 2022? Or the next variant? Throughout the acute phase of the pandemic, it was unknown what the next variant was going to be like and concern remained high that future variants were going to be more dangerous and be able to bypass infection-mediated immunity.
79. The Plaintiffs’ Amended Complaint also suggests that other mitigating actions, such as use of PPE, physical distancing, or working outdoors would have been sufficient to offset an employee’s unvaccinated status. Layered mitigations, like distancing, masking, and working outdoors are useful tools to reduce the risk of COVID-19 in the workplace. However, these are all better when combined with vaccination. No combination of non-pharmaceutical interventions has been shown to be equivalent to vaccination. The fact that COVID is transmitted over distances via aerosols in indoor spaces was clear to many scientists early in the pandemic and was later recognized as the main mode of transmission.¹⁰⁵ An unvaccinated person can therefore increase the likelihood of COVID-19 transmission and infection amongst others by simply being present, even if masked, in a lunchroom, office space, bathroom, or corridor. These aerosols can persist in the air even after the person leaves the space, like smoke from a cigarette. This risk is compounded in unventilated or poorly ventilated spaces. The risk also exists when outdoors, especially when near other individuals or in crowded areas. Notably, Plaintiffs may also interact with individuals and groups of people from communities of color, notably the Hispanic and

¹⁰⁴ See <https://governor.wa.gov/news/2021/inslee-issues-proclamation-requiring-vaccination-most-state-employees-health-and-long-term-care>.

¹⁰⁵ See Noorimotlagh Z, Jaafarzadeh N, Martínez SS, Mirzaee SA. *A systematic review of possible airborne transmission of the COVID-19 virus (SARS-CoV-2) in the indoor air environment*. Environ Res. 2021 Feb;193:110612. doi: 10.1016/j.envres.2020.110612. Epub 2020 Dec 10. PMID: 33309820; PMCID: PMC7726526.

Pacific Islander/Native Hawaiian communities, which were disproportionately impacted by COVID-19 infections, severe disease, and death.

80. In my expert opinion, regular COVID-19 precautions such as masking are a mitigation strategy but cannot replace vaccination. There are no scientific data that I am aware of that describe an equivalency between being vaccinated in addition to other mitigations and not being vaccinated with those same mitigations. As described above, masking is not a substitute for vaccination, and there are no studies demonstrating that non-pharmaceutical interventions (such as masking, sick leave, and access to testing) are, in themselves, sufficient to reduce the risk of infection and transmission in the workplace compared to vaccination with any combination of those mitigations. Social distancing can serve as a layer of mitigation, but this is complicated by the fact that we do not know what a “safe” distance is and by the fact that aerosolized virus remains floating in the air, creating a risk for people who enter a room after the infected person leaves, and for people in adjacent spaces with shared air. Vaccination addresses all these concerns.
81. Testing is far from equivalent to being vaccinated and has not been demonstrated to be an effective tool to prevent COVID-19 transmission in the workplace compared to the effects of vaccination. As described earlier in this document, regular testing has several significant weaknesses. Even putting aside the limitations of PCR and antigen tests, a weekly testing regimen is not frequent enough to prevent an employee from reporting to work while infected with COVID-19. For example, if testing is performed every Wednesday, the person could be infectious and working on Monday, Tuesday, Thursday, Friday, Saturday, and Sunday.
82. Moreover, even a more frequent testing regimen would also not eliminate these risks. Because PCR tests can take multiple days to return results, even if the employee submitted to PCR tests every day, that would not avoid the risk that they would be infected with and/or transmit COVID-19 while at work. And because of the risks of false negative PCR tests and asymptomatic infection and transmission, a regimen of daily PCR testing would similarly not have avoided these risks. Furthermore, it is not clear that the quantity of antigen tests required to permit daily or weekly testing would have been available at the time of Plaintiff’s accommodation requests, and antigen tests have other limitations as described above. For these reasons, even with the required administration and data tracking processes in place, regular PCR testing or antigen testing could easily fail to detect an infected person.
83. Plaintiffs allege in the Amended Complaint that WDFW did not accommodate them in their then-current jobs. I conclude that allowing Plaintiffs to work unvaccinated would pose an undue hardship on the WDFW by negatively impacting workplace safety and posing a threat to the health and safety of employees and their families, the community, visitors, and others who spend time in WDFW facilities or interact with WDFW employees. There are no adequate alternatives to vaccination in this context.
84. Based on the above, it is my opinion that in the period that WDFW denied Plaintiffs’ accommodation requests and separated them from employment, an unvaccinated person posed materially higher risks of transmitting COVID-19, including increasing the potential for causing an outbreak, contracting COVID-19, and developing severe disease, compared with a vaccinated person.

85. As detailed above, if an unvaccinated employee enters a work site, office, or other areas where other people might be, there is a greater risk of COVID transmission, leading to infection of co-workers, employees, or members of the public and carrying a significant risk of a super-spreader event. Even if an infected individual does not enter a site they can interact with and infect other WDFW personnel who do enter those facilities and can then transmit COVID-19 to others. Based on the public health data at the time, such risks were greater both locally and nationally.
86. Plaintiffs allege in the Amended Complaint that no cases of “...any COVID-19 transmission at any time...” were detected by WDFW [paragraph 107]. As WDFW is not a public health surveillance agency and, like most employers, does not have the capacity to perform infectious disease surveillance on its own, this statement, even if true, is evidence of nothing. How do the plaintiffs know that they were not responsible for transmitting COVID-19 to another person in the workplace? Did they track each of their contacts every day? Did they follow each of those contacts for the following week regardless of each person’s job, role, or location? Were those contacts tested with any symptoms? Without a robust contact tracing program, it is not possible to know what transmissions involving WDFW employees, including Plaintiffs, may have taken place.
87. While transmitting COVID-19 to a co-worker implicates serious issues, including the outcomes of infection in that person, and the transmission from that person to other people in their lives (including potentially higher risk family members), transmitting COVID-19 to an unsuspecting child, member of the community, or a person who has been arrested, and who therefore does not have the ability to take additional precautions to protect themselves, implicates potentially even greater issues (as described earlier in this document).
88. For all Plaintiffs whose job duties entailed interactions with coworkers, other WDFW employees, employees in other state departments and divisions, and members of the public, any of whom may have risk factors for severe COVID-19 outcomes, including death, it is my opinion that, had WDFW allowed Plaintiffs to continue their employment unvaccinated, it would have significantly increased the risk that Plaintiffs would infect co-workers, other WDFW employees, and members of the public with COVID-19. Mitigation techniques such as masking, testing, and social distancing are inferior to vaccination and even with such safety measures in place, allowing Plaintiffs to work unvaccinated would have still posed significant increased safety risks. These conclusions were supported by the information and evidence available in fall 2021 and remain true today.